

# R.K. PHARMACY COLLEGE

## COURSE HANDOUT

### Pharmacognosy (Theory)

COURSE CODE: ER20-13T

#### VISION

Train the minds to think logically and become a success

#### MISSION

To Develop inventive, pioneering research & high-quality technical education

#### PROGRAMME EDUCATIONAL OBJECTIVES

- PEO 1:** To produce graduates with sound theoretical knowledge and technical skills required for career opportunities in various domains.
- PEO 2:** To incite the students towards research and to address the challenges with their innovative Contributions for the benefit of mankind.
- PEO 3:** To bring forth a quality professional equipped with technological advances to adapt easily to changes in the ever-evolving pharma and allied industry, hospital and clinical pharmacy setup, pharma retailing and distribution, and governmental and health agencies.
- PEO 4:** To engage graduates in professional ethical practices in a multidisciplinary environment, while contributing to organization through leadership and building team spirit.
- PEO 5:** Pharmacists can become lifelong learners, absorb new technologies, and then offer leadership roles in society.

|                                |                                |
|--------------------------------|--------------------------------|
| <b>Programme Name</b>          | Diploma in Pharmacy (D. Pharm) |
| <b>Course Name</b>             | Pharmacognosy (Theory)         |
| <b>Course Code</b>             | ER20-13T                       |
| <b>Session</b>                 | 2025-26                        |
| <b>Year</b>                    | I                              |
| <b>Labs (Per Week)</b>         | 3                              |
| <b>Course Credit</b>           | 2                              |
| <b>Course Coordinator Name</b> |                                |

#### 1. Scope of the Course:

This course is designed to impart knowledge on the medicinal uses of various drugs of natural origin. Also, the course emphasizes the fundamental concepts in the evaluation of crude drugs, alternative systems of medicine, nutraceuticals, and herbal cosmetics.

#### 2. Course Outcomes (COs):

- CO.1. Identify the important/common crude drugs of natural origin
- CO.2. Describe the uses of herbs in nutraceuticals and cosmeceuticals
- CO.3. Discuss the principles of alternative system of medicines
- CO.4. Describe the importance of quality control of drugs of natural origin

#### 3. Reference Books:

1. Text book of Pharmacognosy by C. K. Kokate, S. B. Gokhale, A.P. Purohit, Nirali Prakashan
2. Text book of Pharmacognosy by C.S. Shah and J. S. Qadry, CBS Publishers & Distributors Pvt. Ltd.
3. Text Book of Pharmacognosy by T. E. Wallis. CBS Publishers & Distributors Pvt. Ltd.
4. Study of crude drugs by M. A. Iyengar, Manipal Press Ltd, Manipal

#### 4. Other Readings & Relevant Websites:

| Sr.No. | Link of Journals, Magazines, Websites and Research Papers |
|--------|---|
|--------|---|

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|---|---|
| 1 | <a href="https://www.ijpsm.com/">https:// www.ijpsm.com /</a>   |
| 2 | <a href="https://www.ijisrt.com/">https:// www.ijisrt.com /</a>   |
| 3 | <a href="http://doi.org/10.2147/DHPS.S282420">http://doi.org/10.2147/DHPS.S282420</a>                           |
| 4 | <a href="http://dx.doi.org/10.22270/ajprd.v9i3.955">http://dx.doi.org/10.22270/ajprd.v9i3.955</a>               |
| 5 | <a href="https://www.researchgate.net/publication/5533900">https://www.researchgate.net/publication/5533900</a> |
| 6 | <a href="https://www.dixonvalve.com/">https://www.dixonvalve.com/</a>   |

## 5. Lab Plan:

| Sr. No | TOPICS  | No. of Lectures |
|--------|---|-----------------|
| 01     | Definition, history, present status and scope of Pharmacognosy  | 2               |
| 02     | Classification of drugs: • Alphabetical • Taxonomical • Morphological • Pharmacological • Chemical • Chemo-taxonomical  | 4               |
| 03     | Quality control of crude drugs: • Different methods of adulteration of crude drugs • Evaluation of crude drugs  | 6               |
| 04     | Brief outline of occurrence, distribution, isolation, identification tests, therapeutic activity and pharmaceutical applications of alkaloids, terpenoids, glycosides, volatile oils, tannins and resins.   | 6               |
| 05     | Biological source, chemical constituents and therapeutic efficacy of the following categories of crude drugs.   | 30              |
|        | Laxatives Aloe, Castor oil, Ispaghula, Senna<br>Cardiotonic Digitalis, Arjuna<br>Carminatives and G.I. regulators Coriander, Fennel, Cardamom, Ginger, Clove, Black Pepper, Asafoetida, Nutmeg, Cinnamon<br>Astringents Myrobalan, Black Catechu, Pale Catechu  |                 |
|        | Drugs acting on nervous system Hyoscyamus, Belladonna, Ephedra, Opium, Tea leaves, Coffee seeds, Coca Anti-hypertensive Rauwolfia Anti-tussive Vasaka, Tolu Balsam<br>Anti-rheumatics Colchicum seed Anti-tumour Vinca, Podophyllum Antidiabetics Pterocarpus, Gymnema<br>Diuretics Gokhru, Punarnava Anti-dysenteric Ipecacuanha<br>Antiseptics and disinfectants Benzoin, Myrrh, Neem, Turmeric |                 |
|        | Antimalarials Cinchona, Artemisia Oxytocic Ergot<br>Vitamins Cod liver oil, Shark liver oil Enzymes Papaya, Diastase, Pancreatin, Yeast<br>Pharmaceutical Aids Kaolin, Lanolin, Beeswax, Acacia, Tragacanth, Sodium alginate, Agar, Guar gum, Gelatine<br>Miscellaneous Squill, Galls, Ashwagandha, Tulsi, Guggul   |                 |
|        | 6 Plant fibres used as surgical dressings: Cotton, silk, wool and regenerated fibres Sutures – Surgical Catgut and Ligatures  | 3               |
|        | 7 • Basic principles involved in the traditional systems of medicine like: Ayurveda, Siddha, Unani and Homeopathy<br>• Method of preparation of Ayurvedic formulations like: Arista, Asava, Gutika, Taila, Churna, Lehya and Bhasma   | 8               |
|        | 8 Role of medicinal and aromatic plants in national economy and their export potential  | 2               |
|        | 9 Herbs as health food: Brief introduction and therapeutic applications of: Nutraceuticals, Antioxidants, Pro-biotics,  | 4               |

|    |  |   |
|----|--|---|
|    | Pre-biotics, Dietary fibres, Omega-3-fatty acids, Spirulina, Carotenoids, Soya and Garlic  |   |
|    | <b>10</b> Introduction to herbal formulations  | 4 |
| 11 | Herbal cosmetics: Sources, chemical constituents, commercial preparations, therapeutic and cosmetic uses of: Aloe vera gel, Almond oil, Lavender oil, Olive oil, Rosemary oil, Sandal Wood oil | 4 |
| 12 | Phytochemical investigation of drugs   | 2 |

#### 6. Content Beyond Syllabus (CBS):

| Sr.No. | Topics  | PO (Annexure 1) |
|--------|---|-----------------|
| 1)     | To demonstrate the working of UV spectrophotometry instrumentation. | PO1, PO3, PO4   |

#### 7. Evaluation Scheme:

The marks allocated for the continuous mode of internal assessment shall be awarded for attendance, practical records, regular viva voce, etc. Two practical sessional exams shall be conducted during mid of the semester. The average marks of the two practical sessional exams shall be computed for internal assessment. A practical sessional exam shall be conducted for 40 marks and shall be computed for 10 marks. Weightage for various evaluation components is as below:

| Sr.No. | Evaluation Component  | Weightage |
|--------|---|-----------|
| 1      | Internal Assessment<br>1. Continuous Mode<br>2. Practical Sessional Exams | 15<br>15  |
| 2      | End Semester Practical Exam   | 10        |
|        | <b>Total</b>  | <b>40</b> |

As per PCI and University guidelines, minimum 75% attendance is required to become eligible for appearing in the End Semester Practical Examination.

**This document is approved by:**

| Designation        | Name | Signature |
|--------------------|------|-----------|
| Course Coordinator |      |           |
| HOD                |      |           |
| Principal          |      |           |

## ANNEXURE I: PROGRAM OUTCOMES

1. **Pharmacy knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
  2. **Planning abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
  3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
  4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.
  5. **Leadership skills:** Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.
  6. **Professional identity:** Understand, analyze and communicate the value of their professional roles in society (e.g., health care professionals, promoters of health, educators, managers, employers, employees).
  7. **Pharmaceutical ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
  8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
  9. **The pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
  10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.
- 11.

